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THE COMPARISON OF STRIAE GRAVIDARUM (SG) NUMBER AND ERYTHEMA DEGREE AFTER 8-WEEK OLIVE OIL AND VIRGIN COCONUT OIL APPLICATION AMONG THE PRIMIGRAVIDA TRIMESTER II IN TANJUNG PINANG

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Striae Gravidarum (SG) and erythema level among the primigravida indicated the physical skin changes during pregnancy. In this study, there were 48 primigravida aged more than 35 years old at pregnancy age 18-24 weeks recruited by a consecutive sampling method at the health center and midwife Practice Private (BPS) in the area department of health Tanjung Pinang. We designed three (3) experimental groups respectively obtained olive oil, virgin coconut oil (VCO), and mineral oil. The treatments were provided twice every day for 8 weeks. Basting was done 2 times a day in the morning and evening after shower on upper and lower stomach without massage smeared (limited covered area at xyphoid to the symphysis pubis, and the side boundary is the mid line axillary right-left). The volume of oil blasted to the respondents' accordance with the treatment was 2 mL, so a total of 224 mL oil was used for 8 weeks in each group. The results revealed the SG numbers and erythema level at primigravida aged more than 35 years with gestational age 18-24 weeks were undetected at the group obtained VCO. Participants who experienced erythema level was found at group treated with either olive oil or mineral oil.

Keywords: Striae Gravidarum, Erythema degree, Olive Oil, Virgin Coconut Oil, Mineral Oil

1. INTRODUCTION

Pregnancy affects the mother's body as a whole with cause physiological changes that occur in all organ systems. The changes of mother's body recognized as temporary events as a response of hormone levels including the impacts uterus, vagina, breast, urinary tract, tract alimentary, respiratory tract, skeleton and joints, metabolism, cardiovascular, as well as on the skin (Helen, 2001). Changes in the skin, appeared at very stretch on the surface, increase hormone secretion from adrenal cortex due to the pregnant women as a result of collagen fibers rupture, called striae gravidarum (Helen, 2001). Fifty to ninety percent of pregnant women tend to have Striae Gravidarum (SG) at the first pregnancy, and the possibility increased 43% after the gestational age of 24 weeks (Sharon, *et. al.*, 2006; (Hibah *et. al.*, 2007). The provisions of SG included the changes of hormones, skin elasticity, and mechanical stretch (Guyton & Hall, 2009; Romsai *et. al.*, 2009). The pregnant women with SG experience itching, hot and dry skin, and also unstable emotions, resulted with a serious confidence problem (Sharon *et. al.*, 2006). Striae gravidarum (SG) has association with physiological dramatic as the result of body changes related to a dependency to

cosmetic. The experiences are natural and harmless, but it causes distress to women (Sharon *et. al.*, 2006).

One study in 2011 revealed the effect of olive oil on the SG pregnant mothers in Iran at the second trimester of pregnancy (Taayoni *et. al.*, 2006). No significant difference was found between intervention and control groups. This research notes that the use of olive oil until the end of the second trimester pregnancy is less effective in reducing the occurrence of SG (Taayoni *et. al.*, 2006). However, Trifina (2008) proved that VCO may decrease the SG area in 28-32 weeks. This study is aimed to find out the number of SG and the erythema degree among the pregnant women in the second trimester of pregnancy who obtained olive oil and VCO, and mineral oil.

2. RESEARCH METHODOLOGY

2.1. Design and Samples

This study employed an experimental study with only randomized study posttest control group design. In this research, there were 48 pregnant women at pregnancy age 18-24 weeks at the health center and midwife Practice Private (BPS) in the area department of health Tanjung Pinang. We designed three (3) experimental groups respectively obtained olive oil, virgin coconut oil (VCO), and mineral oil. Samples were recruited using a consecutive sampling method. The treatments were provided twice every day for 8 weeks. Basting was done 2 times a day in the morning and evening after shower on upper and lower stomach without Massage smeared (limited covered area at xyphoid to the symphysis pubis, and the side boundary is the mid line axillary right-left). The volume of oil blasted to the respondents' accordance with the treatment was 2 mL, so a total of 224 mL oil was used for 8 weeks in each group.

Inclusion criteria for this study were Primigravida pregnant women with gestational age of 18-24 weeks. The respondents will be excluded for research population if at the time of initial assessment found with SG in the maternal abdomen, single pregnant, maternal age ≤ 35 years, has a genetic SG (mother or sister), experienced to pregnancy complication, abortion, or allergy to the treatment. The sample population was the residents in Tanjung Pinang. The respondents should not have experiences to any cream used for preventing SG.

2.2. Measurement

The striae gravidarum (SG) was assessed as the total lines, the erythema degree of the striae, and the SG degree shown in the last day of treatment. The total lines of SG were counted at respondents' abdomen. The erythema degree of the striae was scored based on the erythema appearance as 0 (no erythema), 1 (red/pink), 2 (dark read), and 3 (purple). The combination of these two parameters was assigned to determine the SG degree as 0 (no SG), low ($SG < 5$), medium ($5 < SG < 10$), and high degree ($SG > 10$). The scoring was proposed by Romsai *et. al.* (2009).

2.3. Data Analysis

Shapiro Will test was employed to obtain data distribution. To find out the difference level, parametric data was employed to analyze the normal distributed data whilst the non-parametric test was performed for non-normal distributed data.

3. RESULTS AND DISCUSSIONS

3.1. Respondent characteristics

Table 1. Characteristics of Respondents according to age and gestational age of Pregnant Women at Trimester II

Variable	Treatment Group			p value
	Olive Oil (N=16)	VCO (N=17)	Mineral Oil (N=15)	
Age (years)				
Mean ± SD	28,50 ± 3,27	26,59± 4,65	25,33 ± 3,20	0,060*
Min – Max	21-34	20-34	21-33	
Gestational Age (weeks)				
Mean ± SD	22,62 ± 1,39	22,21 ± 1,33	22,05 ± 1,83	0,599*
Min – Max	20,2-24	20-24	19,2-20,4	

*) performs by Kruskal Wallis test

There were 16 pregnant women involved with olive oil blasting whilst 17 and 15 women obtained VCO and mineral oil blasting, respectively. The age of respondents involved in this study was 21 to 34 years old. The respondents were recognized in a gestational age 19.2 to 24 weeks, as shown in Table 1. The respondents were primagravida, and no difference of age and gestational age among them.

3.2. Striae Gravidarum Lines

Shown in Table 2, there were 4 of 16 pregnant women at the group obtained olive oil have the SG lines on the average (± SE) of 6,25 ± 3,60, whilst 40% of the respondents rubbed with mineral oils (control group) found with SG at average 4.87 ±2,14. Performed with a Kruskal Wallis test, a significant difference was found among the groups since no SG was revealed in the pregnant women provided VCO. This data generated significant difference of SG line among the respondents who obtain VCO than the respondents treated with olive oil and mineral oil, as shown in Table 3. The number of SG lines testified the amount of collagen broken due to pregnancy, indicated the separation of connective tissue (collagen) in under skin (Bobak et.al, 2005).

Table 2. The comparison of SG number among the experimental groups after obtained olive oil, VCO, and mineral oil

Parameters	Groups			p value
	Olive Oil (N=16)	VCO (N=17)	Mineral Oil (N=15)	
Having SG				
Yes	4 (25%)	0 (0%)	6 (40%)	0.018*
No	12 (75%)	17 (100%)	9 (60%)	
Number of SG (Lines)				
Min – Max	0 – 50	0 – 0	0 – 32	0,025*
Mean ± SE	6,25 ± 3,60	0 ± 0	4,87 ± 2,14	

*) performed by Kruskal Wallis test

Table 3. The *p* value of the number of SG among the experimental groups after obtained olive oil, VCO, and mineral oil

Parameters	Olive oil	VCO
Mineral Oil	0.53	0.005
VCO	0.031	-

3.3. Erythema Level

Table 4. The comparison of erythema level among the experimental groups after obtained olive oil, VCO, and mineral oil

Groups	Erythema level			P
	Low	Medium	High	
Olive Oil (N=4)	1 (6.3%)	0 (0%)	3 (18.8%)	0.019*
VCO (N=0)	0 (0%)	0 (0%)	0 (0%)	
Mineral Oil (N=6)	1 (6.7)	4 (26,7%)	1 (6.7%)	

*) performed by *Chi-Square* test

We provided the level of erythema in the Table 4. Out of pregnant women who have SG in the group treated with olive oil, there was one respondent detected with low erythema degree and the rests experienced high erythema degree. However, we recognized that only one pregnant woman obtained mineral oil has high erythema level, and this difference was not significant. The majority at place group was found having SG at medium degree. In another hand, observed in Table 2, we revealed that there was no SG among the pregnant women trimester II having SG who obtained VCO. Performed by Mann-Whitney test, among others the group was found with a significant difference of SG line and erythema level, respectively shown in Table 3 and 5.

Table 5. The *p* value of erythema level among the experimental groups after obtained olive oil, VCO, and mineral oil

Parameters	Olive oil	(VCO)
Mineral oil	0.042	0.005
VCO	0.031	

4. CONCLUSIONS AND RECOMMENDATIONS

This study revealed the SG numbers and erythema level at primigravida aged more than 35 years with gestational age 18-24 weeks were undetected at the group obtained VCO. Participants who experienced erythema level was found at group treated with either olive oil or mineral oil. A recommendation related to the SG number and erythema level among the primigravida at trimester II may be given to VCO.

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